Duck Tales

The Official Newsletter of the Town of Duck

Volume 8, Issue 1 Winter 2011

This is the first in a series of biannual publications to Town property owners and residents. It is designed to promote awareness of emergency management and storm-related items.

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Town of Duck News

For information on using the above i-nigma QR/barcode, visit page 4.

Storm Preparedness Issue

Duck's Nationally-Recognized Beach

Quality of Life —

That's what brings us to Duck; and for most, the reward is worth the challenges that come with living in this barrier island community.

We all understand that the Town of Duck is affected by extreme weather conditions which can bring rain, wind, flooding, and storm surge. These events place life, property, and natural systems at risk and cause property owners and residents to think carefully about the choices that they make.

This publication intends to cover some basic considerations that property owners, residents, and vacationers should keep in mind to mitigate storm-related hazards and to stay out of harm's way.

Storms — Wind, Flooding, and Storm Surge

Duck is surrounded by water – this makes the Town vulnerable to flooding and high winds produced by hurricanes, tropical storms, and nor'easters.

Buildings along the shoreline are susceptible to wave action and high tides associated with storm surges generated in the Atlantic Ocean and Currituck Sound.

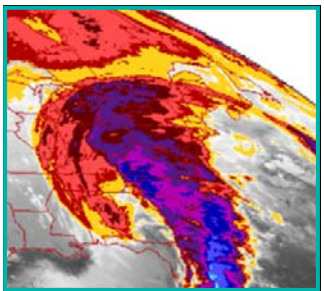
Properties in low-lying areas are prone to flooding from overwash or significant rainfall, particularly when the seasonal groundwater table is high due to consecutive rain events. When the groundwater table is high, the soil cannot absorb water quickly, and water stands at the surface for longer periods of time.

The Town is also vulnerable to shoreline erosion, which over a period of time will increase the vulnerability of ocean and soundfront structures to these forces.

Flooding from the Atlantic Ocean occurs when offshore storms create storm surge and wave conditions that result in ocean overwash. Overwash can flood oceanfront structures as it passes inland, and can often create ponds of water behind the primary frontal dune that can flood low-lying areas.

Hurricane Isabel, which hammered the Outer Banks in September 2003, generated 90 mph east winds that caused significant erosion along the oceanfront. Areas in Ocean Pines and Carolina Dunes experienced overwash that resulted in moderate flooding behind the primary frontal dune. The storm destroyed approximately 90 percent of the ocean walkways and dune decks from Sanderling to the southern Town line, and flooded a number of ground floor enclosures. Damage to beach walkways and flooding of ground floor enclosures also resulted from the Thanksgiving nor'easter of 2006, the September nor'easter of 2008, and the November nor'easter of 2009.

Flooding along Duck's Currituck Sound shoreline occurs when prevailing winds gust for several days from a southerly or westerly direction. The worst soundside flooding in recent history occurred in March 1993 from the "*Storm of the Century*" which produced southwest winds in excess of 60 mph for three days. The soundside flooding that followed brought floodwater to levels that on average exceeded previous flood events by three feet.



Storm of the Century 1993 Courtesy of NASA

The Town has experienced a number of torrential rainfall events in recent years that resulted in widespread flooding in low lying areas throughout Duck. Hurricanes Alex, Bonnie, and Charlie passed over or near the Outer Banks in quick succession in the last of days of summer 2004, bringing 20 plus inches of rainfall in less than a month. Two years later, in September 2006, Tropical Storm Ernesto dumped eight inches of rain in a 24-hour period. Hurricane Earl brushed the Outer Banks in September 2010, bringing moderate wind damage and torrential rainfall.

The result in each of these storms was flooding in the low-lying areas immediately west of the dunes in Ocean Crest, Bias Shores, Tides of Duck, East Tuckahoe, Sand Dollar Shores, Sea Acres, and Georgetown Sands. Flooding also occurred along the eastern portions of Christopher Drive, Schooner Ridge, Sea Tern, Caffey's Inlet, Sound-Sea Village, and Ocean Pines.

Flooding in Sound-Sea Village Winter 2010

Moderate flooding was also experienced in low lying areas throughout the Sanderling subdivision. Flooding along NC 12 occurred at Tuckahoe Drive, in the area just north of the Duck water tower, and four locations between Sound-Sea Village (south of Sanderling) and Palmer's Island (north of Sanderling).

These events have helped the Town better understand and assess the vulnerabilities and risks that exist in specific areas of Duck. They also highlight the importance of properly siting, designing, and constructing buildings and infrastructure, as well as taking precautions to ensure property is protected and risks are minimized.

Floodplain Regulations and Insurance Requirements

Approximately one-half of the properties in Duck are located within a regulatory floodplain or "*Special Flood Hazard Area*". These are areas identified by the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps (FIRM) as being particularly susceptible to flooding and wave action.

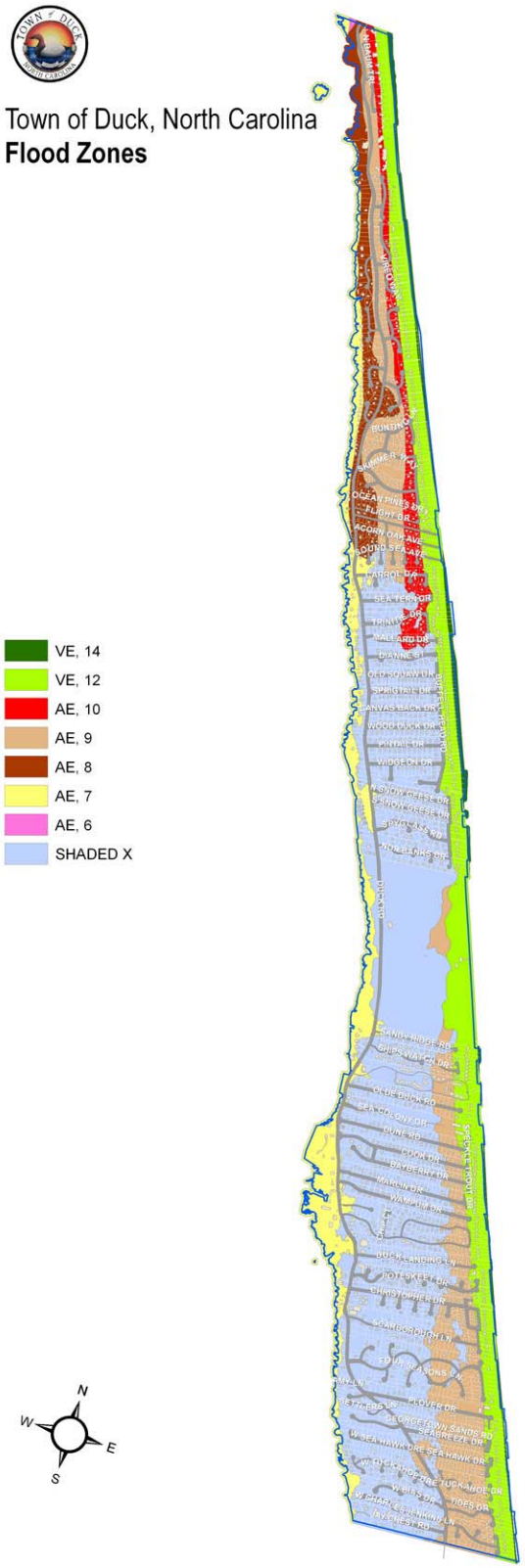
The Town of Duck is a participant in the National Flood Insurance Program which makes property owners eligible to purchase federally-backed flood insurance. As a primary requirement of this program, the Town must apply and enforce regulations within the Special Flood Hazard Area which are designed to reduce the risk of flooding and wind damage.

Special Flood Hazard Areas are assigned risk classifications based on elevation and topography, as well as proximity to water. Structures in these areas with enclosed habitable space are required to be constructed at a minimum elevation above mean sea level. This minimum elevation varies depending on the area and the risk classification assigned by the FIRM.

This is called the Base Flood Elevation and is estimated through a detailed engineering study to be the flood level of the 100-year storm. This means that, in any given year, there is a one percent chance that structures below this Base Flood Elevation could be flooded. The Special Flood Hazard Areas in Duck include properties on the oceanfront or in low-lying areas which generally have ground elevations of between zero and 10 feet above mean sea level.

If you conduct a development project in the Special Flood Hazard Area, the Town of Duck issues a Floodplain Development Permit to determine that the project is consistent with the Base Flood Elevation and all other minimum construction standards established by the National Flood Insurance Program. The Town maintains copies of Flood Insurance Rate Maps published by FEMA for the Town of Duck (or Dare County prior to the Town's incorporation). Staff from the Town's Department of Community Development can determine the Flood Zone and Base Flood Elevation that applies to your property if it is located in the Special Flood Hazard Area. This service is free and is available at the Town's administrative office.

The map to the right overviews the Town of Duck's Flood Zones as of September 20, 2006.



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Floodplain Regulations and Insurance Requirements *(cont'd from page 3)*

The Town also maintains a record of FEMA elevation certificates for properties and can provide these to property owners upon request, if available. Often lenders and insurance agents will ask for elevation certificates when issuing loans or insurance policies since they contain information used to determine insurance premiums or mortgage eligibility.

Accurate elevation and flood zone data is critical for insurance agents to estimate premiums. Property owners should inquire with their agent to ensure that correct flood zone information is being used.

When purchasing an existing structure, often premiums should be estimated based on the flood zone in effect at the time the structure was built. In many cases, grandfathering provisions will apply that can result in significantly reduced premiums. Only in cases when "substantial improvements" have been made to the structure will the structure be required to meet all recent flood elevation and construction standards.

A substantial improvement is a project or a series of projects within any consecutive 12-month period where the cost equals or exceeds 50% of the building's market value. When repairs to a damaged building equal or exceed this threshold, the standards applicable to substantial improvements will also apply.

Purchase Flood Insurance!

It is important to understand that a standard homeowner's insurance policy does NOT cover flood-related losses.

While flood insurance is typically only required for properties with federally-backed mortgages, FEMA and the Town strongly encourage all property owners to purchase flood insurance, even if the property is not in a designated Special Flood Hazard Area.

Outside the Special Flood Hazard Area, preferred risk policies can be purchased which carry a relatively low premium.

Flood policies generally cover up to $250,000 for flood-related damage to single-family dwellings, with an additional $100,000 of coverage to the contents of the building.

Using a QR/Barcode Reader

New to this issue is the addition of barcodes. These barcodes, also known as QR (Quick Response) codes, allow for data to be stored and then read quickly by a smart device/phone.

These barcodes can store URL's, telephone numbers, or text data. QR codes are a new and innovative way to fast track you to the internet by using the camera on your smart phone and a downloaded application which converts the QR code to data.

QR codes can be found in various publications, magazines, newspapers, billboards, and even on t-shirts.

The Town of Duck is using the ***i-nigma Mobile Reader*** application to read and create QR codes. The ***i-nigma Mobile Reader*** works with most smart phones. To download it, and to see if your device is compatible, please use the following URL:

http://www.i-nigma.com/Downloadi-nigmaReader.html.

Some Websites of Interest

North Carolina Emergency Preparedness

National Weather Service Watches, Warnings, and Advisories: http://www.srh.noaa.gov/showsigwx.php?warnzone=NCZ103&warncounty=NCC055&local_place1=Kitty+Hawk

Dare County, North Carolina Emergency Management Information: http://darenc.com/EmgyMgmt/Alert/index.asp

State of North Carolina Emergency Preparedness: http://www.readync.org/

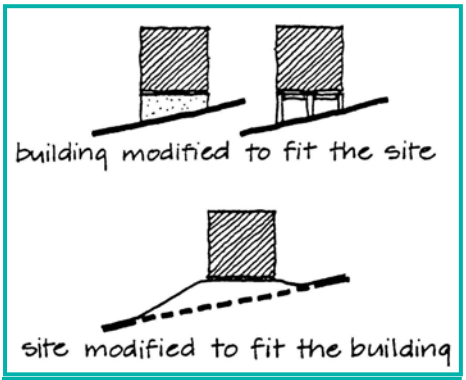
Town of Duck Website

Floodplain Development Basics — Altering the Land to Fit the Structure, or Altering the Structure to Fit the Land?

Historically, a common practice on the Outer Banks has been to construct houses using pile-supported foundations with all portions of the structure elevated above grade. This method of construction served a number of purposes, one of which was to avoid flooding and associated property damage. In recent times, structures are often enclosed at the ground level to provide additional living space and amenities for families and renters. While this practice is beneficial to maximize the use of valuable property, it can increase the risk of damage, not only to the structure itself and its contents, but also to adjacent properties.

In recent years with the significant rain events that the Town has experienced, there has been an increase in the number of homes that have had water enter either the ground floor living space or storage area. After Ernesto in 2006 and the winter rains in 2009/2010, numerous homes located at-grade were flooded or had standing water beneath the foundation for weeks, or even months, in some cases. While the nuisance of standing water would not totally be alleviated by elevating the structure alone, property damage could have been avoided if all portions of the structure were above grade.

In many cases properties are built-up with fill, rather than elevated on a wood foundation. The practice of building up property with fill can have detrimental impacts on adjacent properties or neighborhoods by displacing water and raising the overall flood height in a particular area or drainage basin. While this practice may have limited impacts on an individual basis, cumulatively this can have significant effects, changing the dynamics of water runoff, storage, and absorption capacity. Filling in a floodplain is similar to placing sand in a glass of water. The more sand that goes in, the less water the glass can hold, and eventually the glass overflows.



Courtesy Design Manual Cape Hatteras National Seashore National Park Service

The floodplains in Duck are sensitive areas, which many times of the year are only a few feet above the groundwater table. Water has the ability to more readily infiltrate if it is spread over a large area. If more of the ground surface is filled and paved, water will collect in lower, open areas where it will either evaporate or infiltrate into the soil. Over time, increasing impervious surfaces and adding fill reduces the capacity of an area to evenly distribute and absorb the water from larger storms. In effect, water will remain at the surface for longer periods of time in the remaining areas that it is able to collect. Limiting impervious surfaces and fill increases the natural storage and infiltrative capacity of floodplains. Preserving trees and vegetation also increases the amount of water that is absorbed, since they contribute significantly to water uptake.

Many property owners claim that their homes, which never flooded in previous years, have experienced more recent problems due to newer adjacent developments where impervious areas have increased and when substantial filling has occurred. The Town now has regulations to limit the placement of fill but these regulations only provide a minimum level of protection to adjacent property owners. The Town would ask property owners to carefully consider impacts to adjacent property owners when contemplating filling, clearing, or development activities, particularly in the Special Flood Hazard Area, and certainly encourages the practice of structurally elevating buildings as a means to avoid flooding rather than placing significant amounts of fill. The Town also encourages the use of pervious paving materials for driveways, parking areas, and decks, such as gravel over sand or wood slatted decking to increase the surface area of the land that can absorb water.

Please remember that any development, including building construction, septic installation or repair, filling and grading activity, or the installation of a pool, requires a Floodplain Development permit to be issued by the Town of Duck Department of Community Development. Town staff can provide you with information on permitting requirements and are available to discuss your project, including an on-site review, at your convenience. Please keep this service in mind as you plan your next project. More information can be found on the Town's website http://www.townofduck.com/planningzoning.htm.

Before, During, and After A Storm

Fortunately a number of sources exist to track storms and monitor evacuation notifications and emergency procedures.

Website: The Town of Duck maintains a page on its website dedicated to Emergency Preparedness and provides current storm-related information.

Town of Duck Emergency Preparedness Information

This website is found at the following address http://www.townofduck.com/emergencypreparedness.htm.

This page contains a number of useful links to track and monitor storms, to understand evacuation orders and procedures, and to assist with developing a personal storm preparedness plan.

Subscriber E-Mail List: The Town maintains an e-mail subscriber's list which will provide storm-related information to all subscribers as necessary. To subscribe to this service, visit the Town's website at www.townofduck.com and click on the "*Subscribe*" button on the lower right hand side of the page or click on the QR code to the right

Duck E-Mail List

Other Information Sources: Town information can also be found through Facebook, Twitter, YouTube, our Information Line, and an RSS feed on our News page.

Nixle: Nixle is a new service that the Town is using which is a secure and municipality-based information delivery system. A user can choose to receive information from a municipality or agency, or multiple agencies, based upon location. The information can be delivered via SMS text, e-mail, or by logging into the service based upon user choice. Duck plans to use Nixle for event, public safety, and weather-related updates in conjunction with our other information venues. To sign up, visit https://local.nixle.com/register/ and enter in your Duck address to select the Town.

Facebook: Town of Duck
Twitter: DuckPR
YouTube: DuckPR
News: www.townofduck.com/news
Information Line: (252) 255-1286
Nixle: https://local.nixle.com/register/

Prepare a Personal Evacuation Plan

- Identify ahead of time where you could go if you are told to evacuate. Choose several places--a friend's home in another town, a motel, or a shelter.
- Keep handy the telephone numbers of these places as well as a road map of the area. You may need to take alternative or unfamiliar routes if major roads are closed or clogged with traffic.
- Listen to NOAA Weather Radio, local radio, or TV stations for evacuation instructions. The primary Early Alert System (EAS) radio station for this area is WRSF (105.7) Columbia, North Carolina.
- In addition, other local radio stations and local Government Access Charter Cable Channel 20 provide important information and warning messages.
- If advised to evacuate, do so **immediately**!

Assemble a Disaster Supplies Kit With:

- First aid kit and essential medications.
- Canned food and can opener.
- At least three gallons of water per person.
- Protective clothing, rainwear, and bedding or sleeping bags.
- Battery-powered radio, flashlight, and extra batteries.
- Special items for yourself, infants, elderly, or disabled family members including medicines and medical records.
- Items for your pet including food, water, medicines, and medical records.
- Written instructions on how to turn off electricity, gas, and water if authorities advise you to do so. (Remember, you may need a professional to turn them back on.)

Prepare for High Winds

- Install hurricane shutters or purchase precut 1/2" outdoor plywood boards, along with the screws to install them, for each window of your home.
- Install anchors for the plywood and pre-drill holes in the plywood so that you can put it up quickly.
- Make trees more wind resistant by removing diseased and damaged limbs, then strategically remove branches so that wind can blow through.

Continued on page 7

Before, During, and After A Storm *(cont'd from page 6)*

Know What to do

When a Hurricane Watch is Issued

- Listen to NOAA Weather Radio, local radio, or TV stations for up-to-date storm information.
- Prepare to bring inside any lawn or deck furniture, outdoor decorations or ornaments, trash bins, hanging plants, and anything else that can be picked up by the wind.
- Prepare to cover all windows of your home. If shutters have not been installed, use precut plywood as described earlier. Note: Tape does not prevent windows from breaking, so taping windows is not recommended.
- Fill your car's gas tank.
- Recheck manufactured home tie-downs.
- Check batteries and stock up on canned food, first aid supplies, drinking water, and medications.

When a Hurricane Warning is Issued

- Listen to the advice of local officials, and leave if they tell you to do so. The Hurricane Evacuation Route for Duck is NC 12 (south) to US 158 (west) towards Elizabeth City, North Carolina and Norfolk, Virginia.
- Remember: There are no American Red Cross Approved shelters in Dare County. Inland shelter locations may be broadcast on local radio stations or on Charter Cable Channel 20.
- Complete preparation activities. If you are not advised to evacuate, stay indoors and away from windows.
- Be aware that the calm of the "eye" is deceptive; the storm is not over. The worst part of the storm will happen once the eye passes over and the winds blow from the opposite direction. Trees, shrubs, buildings, and other objects damaged by the first winds can be broken or destroyed by the second winds.
- Be alert for tornadoes as they can happen during a hurricane and after it passes over. Remain indoors, in the center of your home, in a closet, or bathroom without windows.
- Stay away from flood waters. If you come upon a flooded road, turn around and go another way. If you are caught on a flooded road and waters are rising rapidly around you, get out of the car and climb to higher ground. FEMA maintains a useful website with information on this topic titled, "*Turn Around Don't Drown*", and the URL is http://www.srh.noaa.gov/tadd/.

Evacuation Route for The Town of Duck

When a Hurricane is Over

- Keep listening to NOAA Weather Radio, local radio, or TV stations for instructions.
- If you evacuated, return home only when local officials tell you it is safe to do so. Town personnel and public safety will be extra busy with clean-up, damage assessment, and providing emergency services. Be smart, and follow the advice of local officials.
- Inspect your home for damage.
- Use flashlights in the dark; do not use candles.
- Some things that you could encounter:
  - ⇒ Polluted water;
  - ⇒ Severe flooding;
  - ⇒ Limited communications and services;
  - ⇒ Stores to be closed;
  - ⇒ No electricity, telephone, and/or water;
  - ⇒ Septic tanks backed up and flooding;
  - ⇒ Structures undermined;
  - ⇒ Severe erosion to shorelines;
  - ⇒ Trees and limbs on roads;
  - ⇒ Damage to personal property.

Duck Town Council

- Dave Wessel, Mayor
- Don Kingston, Mayor Pro Tempore
- Chuck Burdick
- Neil Morrison
- Monica Thibodeau

Duck Town Staff

- Christopher Layton, Town Manager
- Phillip Ferguson, Chief of Police
- Donna Black, Fire Chief
- Andy Garman, Director of Community Development
- Cory Tate, Building Inspector
- Lori Kopec, Town Clerk
- Kathy McCullough-Testa, PR/Special Events
- Sandy Cross-Cady, Permit Coordinator/ CAMA LPO
- Christie Moseman, Administrative Assistant

Town Office
1240 Duck Road, Suite 106
Waterfront Shops
(mailing address)
P.O. Box 8369
Duck, NC 27949
Phone: (252) 255-1234
Events Hotline:
(252) 255-1286
Fax: (252) 255-1236
E-mail: info@townofduck.com
Website: townofduck.com
Facebook: Town of Duck
Twitter: DuckPR
YouTube: DuckPR

Town Website and Subscriber List

Website: The Town of Duck's website is **townofduck.com**. It contains information regarding Town meetings, events, ordinances, zoning requirements, and services. The website also provides easy-to-find information for our homeowners, business owners, property owners, visitors, builders, and developers.

E-mail List: The Town of Duck maintains an e-mail list to provide you with timely updates on meetings, information, events, and other news that occurs between the printings of this newsletter. To be added to our list, please visit our website at **townofduck.com** and click on the "*Subscribe*" button on the home page or scan the QR code on the right.

Duck E-Mail List

Upcoming Meetings and Events

Town Council Retreat: The Duck Town Council will hold its annual retreat on Wednesday, January 26, 2011 and Thursday, January 27, 2011 at the Sanderling Resort Conference Center, 1261 Duck Road. For details, visit **townofduck.com**.

Town Council: Council meets the 1st Wednesday of each month at 7:00 p.m. and the 3rd Wednesday of each month at 1:00 p.m. (as needed) at the Town Office.

Planning Board: The Planning Board meets the 2nd Wednesday of each month at 6:30 p.m. at the Town Office, with additional meetings scheduled as needed.

Town of Duck
P.O. Box 8369
Duck, NC 27949

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